## (19) World Intellectual Property **Organization**

International Bureau





(43) International Publication Date 24 February 2005 (24.02.2005)

PCT

## (10) International Publication Number WO 2005/017422 A1

(51) International Patent Classification<sup>7</sup>:

F25B 1/00

(21) International Application Number:

PCT/KR2003/001794

(22) International Filing Date:

2 September 2003 (02.09.2003)

(25) Filing Language:

Korean

(26) Publication Language:

**English** 

(30) Priority Data: 10-2003-0053062

31 July 2003 (31.07.2003) KR

(71) Applicant and

(72) Inventor: KIM, Young-Taek [KR/KR]; Youngsin House No.6, 962-35, Hogye 2-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-082 (KR).

(74) Agents SHENSEGI PATENT LAW FIRM; 2nd Floor, Sangwon Bldg., 636-15, Yeoksam-1dong, Gangnam-gu, Seoul 135-908 (KR).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD; GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

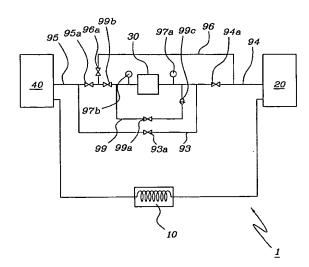
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) TIME REFRIGERATION SYSTEM OF AIR CONDITIONING APPARATUSES WITH BYPASS LINE BETWEEN INLET AND OUTFLET OF COMPRESSOR



(57) Abstract: A refrigeration system of air conditioning apparatuses with a bypass line between the inlet and outlet of a compressor. The refrigeration system (1) has an expansion unit (10) to execute adiabatic expansion of refrigerant, an indoor unit (20) with a heat exchanger, a compressor (30) to execute adiabatic compression of the refrigerant, and an outdoor unit (40) with a heat exchanger, and is operated to cool or heat air within a space to a desired level by using the phase change of the refrigerant. The refrigeration system also has a bypass line (99) between the inlet and outlet of the compressor (30) to bypass at least a part of the output refrigerant from the outlet to the inlet of the compressor when the pressure of the output refrigerant is lower than a reference level or the temperature of the air outside the compressor is lower than a reference level.